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CLAIMS

1. A method for replication of a target region of a target DNA molecule comprising the steps of:

- Sub A2
- (a) introducing a D-loop into the target DNA molecule at a first initiation point adjacent to the target region in a reaction mixture;
 - (b) adding proteins to the reaction mixture to assemble a replisome at the D-loop; and
 - (c) providing DNA monomers and ATP to the replisome, whereby the target region is reproduced.

2. The method of claim 1, wherein the target DNA molecule is a duplex DNA.

3. The method of claim 2, wherein the step of introducing a D-loop is performed by hybridizing the duplex DNA molecule with a first oligonucleotide primer which is substantially complementary to the first initiation site.

4. The method of claim 3, wherein the first oligonucleotide primer has a length of from 20 to 50 bases.

5. The method of claim 3, wherein the first oligonucleotide primer comprises a detectable label or capture moiety.

6. The method of claim 3, further comprising the step of introducing a second D-loop by hybridizing the duplex DNA molecule with a second oligonucleotide primer which is substantially complementary to a second initiation site, said target region lying between the first and second initiation sites.

7. The method of claim 6, wherein the first and second oligonucleotide primers each have a length of from 20 to 50 bases.

Sub A4

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1 8. The method of claim 6, wherein at least one of the oligonucleotide
2 primers comprises a detectable label or capture moiety.

1 9. The method of claim 6, wherein the replication is performed in a
2 supporting matrix.

1 10. The method of claim 6, wherein the replisome is assembled via the
2 action of primosomal proteins, single-stranded DNA-binding protein and the DNA
3 polymerase III holoenzyme.

1 11. The method of claim 10, wherein the primosomal proteins includes a
2 mutant PriA protein which lacks ATPase and helicase functionality.

1 12. The method of claim 2, wherein the replication is performed in a
2 supporting matrix.

1 13. The method of claim 1, wherein the replication is performed in a
2 supporting matrix.

1 14. The method of claim 1, wherein the replisome is assembled via the
2 action of primosomal proteins, single-strand binding protein and holoenzyme III.

1 15. The method of claim 14, wherein the primosomal proteins includes a
2 mutant PriA protein which lacks ATPase and helicase functionality.